

## MATHEMATICS PARENT GUIDE

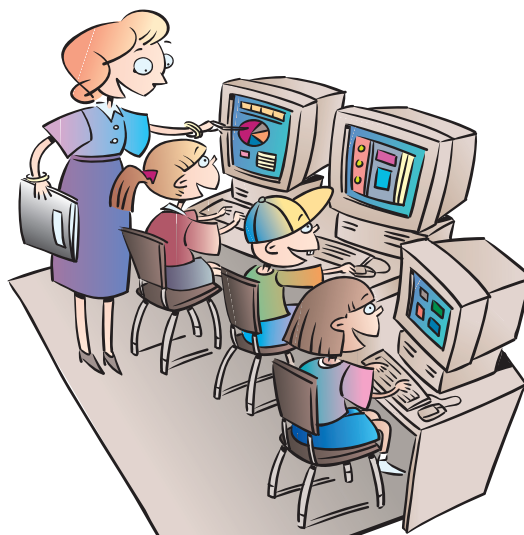
By the end of grade six, students have mastered the four arithmetic operations with whole numbers, positive rational numbers, positive decimals, and positive and negative integers; they accurately compute and solve problems. They find prime factorizations, least common multiples, and greatest common factors. They create, evaluate, and simplify expressions, and solve equations involving two operations and a single variable. They solve problems involving an unknown angle in a triangle or quadrilateral, and use properties of complementary and supplementary angles. Students know about  $\pi$  as the ratio between the circumference and the diameter of a circle and solve problems using the formulas for the circumference and area of a circle. Students analyze, draw conclusions, and make predictions based upon data and apply basic concepts of probability.

### THE FOLLOWING ARE SPECIFIC SKILLS STUDENTS NEED TO ACQUIRE BY THE END OF GRADE SIX:

#### NUMBER SENSE AND OPERATIONS

- ▶ Recognize a rational number as a ratio of two integers.
- ▶ Use exponents in standard and expanded form and in scientific notation.
- ▶ Compare and order rational numbers, including positive and negative mixed fractions and decimals, using a variety of methods, including the number line and finding a common denominator.
- ▶ Find equivalent forms for common fractions, decimals, percents, and ratios, including repeating or terminating decimals.
- ▶ Relate percents less than 1% or greater than 100% to equivalent fractions, decimals, whole numbers, and mixed numbers.
- ▶ Recognize that the sum of an integer and its additive inverse is zero.
- ▶ Classify whole numbers to 100 as prime, composite, or neither.
- ▶ Write prime factorization of numbers to 100.
- ▶ Find the greatest common factor and least common multiple for two numbers.
- ▶ Give mixed-number and decimal solutions to division problems with whole numbers.
- ▶ Solve a multi-step problem involving multiplication and division of fractions and decimals.

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# MATH

# PARENT GUIDE

## MATHEMATICS PARENT GUIDE (CONTINUED)

- ▶ Use estimation to determine whether results obtained using a calculator are reasonable.
- ▶ Solve problems involving ratios and proportions.
- ▶ Multiply and divide a multi-digit number by a two-digit number, including decimals.
- ▶ Add, subtract, multiply, and divide fractions and mixed numbers.
- ▶ Add and subtract integers.

### PATTERNS AND NUMBER RELATIONSHIPS

- ▶ Draw a graph and write an equation from a table of values and create a table of values from an equation.
- ▶ Solve single-variable linear equations.
- ▶ Evaluate and simplify expressions and formulas, substituting given values for the variable (e.g.,  $2x + 4$ ;  $x = 2$ ; therefore  $2(2) + 4 = 8$ ).

### GEOMETRY

- ▶ Identify the midpoint of a line segment and the center and circumference of a circle.
- ▶ Identify angles as vertical, adjacent, complementary, or supplementary.
- ▶ Solve problems involving an unknown angle in a triangle or quadrilateral.
- ▶ Rotate a polygon about the origin by a multiple of  $90^\circ$  and identify the location of the new vertices.
- ▶ Translate a polygon, whether horizontally or vertically, on a coordinate grid, and identify the location of the new vertices.
- ▶ Reflect a polygon across either the x- or y-axis and identify the location of the vertices.

### MEASUREMENT

- ▶ Use given formulas to calculate circumference of a circle, areas of polygons, surface area and volume of a cylinder.
- ▶ Convert units of measurement within their system (metric or customary).
- ▶ Compare a meter to a yard, a liter to a quart, and a kilometer to a mile.

### STATISTICS AND DATA

- ▶ Design the appropriate format to display data (e.g., line plots, bar graphs, line graphs, scatter plots, and circle graphs).
- ▶ Compare similar sets of data using varied graphs.
- ▶ Recognize the effect of scale in displaying data.
- ▶ Use data to make inferences and predictions.
- ▶ Compare individual, small-group results for a probability experiment, and write the results as a fraction, ratio, and percent between zero and one.